

IN THE SPECIFICATION:

Please insert the following heading and paragraph before the paragraph beginning at page 1, line 4:

RELATED APPLICATIONS

Q1 The present application is a continuation of United States Patent Application Serial No. 09/183,157, filed October 30, 1998, now abandoned, which is a continuation of United States Patent Application Serial No. 09/058,238, filed April 9, 1998, now abandoned, which is a continuation-in-part of United States Patent Application Serial No. 08/723,636, filed October 2, 1996, now U.S. Patent No. 5,958,714, and which claims priority to United States Provisional Patent Application Serial No. 60/063,038, filed on October 22, 1997, the entire disclosures of which are expressly incorporated herein by reference.

Please delete the heading and paragraph beginning at page 1, line 22.

Please replace the paragraph beginning at page 4, line 3 with the following amended paragraph:

Q2 Further in accordance with the invention, there are provided systems and test kits as listed in TABLE I. The systems and test kits comprise specific membrane(s), preparation reagent(s), eluant(s) (if necessary) and analytical reagent(s) for use in connection with the above-summarized apparatus, in determining specific analyte(s) in specific types of matrices.

[Please replace the paragraph beginning at page 4, line 8 with the following amended paragraph:]

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cont
Still further in accordance with the invention, there are provided certain novel chemical tests for histamine, sulfite and/or bisulfite, free fatty acids, and lipid peroxides, as detailed herein and shown in TABLE I.

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Please delete the heading at page 6, line 17 and the paragraph beginning at page 6, line 18.

Please replace the paragraph beginning at page 6, line 20 with the following amended paragraph:

Figures 18A-18I depicts TABLE I listing a number of preferred test methods/kits of the present invention.

Please replace the paragraph beginning at page 6, line 22 with the following amended paragraph:

R3
Figure 19 shows TABLE II, which is a key to the acronyms used to designate specific membranes, reagents, and substances in TABLE I of Figures 18A-18I.

[Please replace the paragraph beginning at page 6, line 24 with the following amended paragraph:]

Figure 20 shows TABLE III listing commercially available membranes useable in the test methods/kits of TABLE I.

Please replace the paragraph beginning at page 6, line 26 with the following amended paragraph:

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Figure 21 shows TABLE IV listing algorithms which are useable in conjunction with certain test kit & methods of the present invention to predict or discern certain parameters, such as shelf life, presence of contaminants, potential for oxidative degradation, etc, in accordance with the general method diagram of Figure 4.

Please replace the paragraph beginning at page 13, line 7 with the following amended paragraph:

Figures 5-16 show various embodiments of apparatus which are useable to perform the analytical methods of applicant's invention. Set forth herebelow are detailed descriptions of each of the exemplary embodiments shown in the drawings.

Please replace the paragraph beginning at page 13, line 11 with the following amended paragraph:

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Referring to Figures 5-9, the first embodiment of the test apparatus 10 generally comprises the following components: a) a vacuum base 16, b) a test tube rack 14, c) a cover 12, d) membrane module(s) 18, 20, and e) lids 22. As described in the following paragraphs, these components of the apparatus 10 are configured and constructed to be assembled and disassembled in a particular manner to facilitate the performance of analytical tests in accordance with applicant's above-described methodologies.

Please replace the paragraph beginning at page 13, line 18 with the following amended paragraph:

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The vacuum base 16 comprises a housing having a cavity 17 formed therein and opening through the top of the base 16. A vacuum port 32 is formed in the base 16 to permit a vacuum line to be attached to the base for the purpose of drawing a partial vacuum within the cavity 17. A seal 30, such as an oval-shaped O-ring, is mounted about the upper opening of the cavity 17, as shown.

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Please replace the paragraph beginning at page 14, line 24 with the following amended paragraph:

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As shown specifically in Figures 5, 6, 7 and 8, the primary and secondary membrane modules 20, 18 are formed partially of a hard polymer HP such as polypropylene, polystyrene or polyethylene and partially of an elastomer EM such as a natural or synthetic rubber or similar material. This dual resin construction may be accomplished by co-molding techniques whereby the first (i.e., hard) resin is shot into the mold and, thereafter, the second (i.e., elastomeric) material is shot into the same mold so as to become adherent upon or fused with the first (i.e., hard) resin. In this manner the preferred two-material construction described above, can be accomplished in a single mold with minimal manual operation and handling. Alternatively, this dual resin construction may be accomplished by a two (2) step "over molding" process which is known in the art of injection molding.

Please replace the paragraph beginning at page 15, line 17 with the following amended paragraph:

ack
The number of secondary membrane modules 18 mounted on each sample port 13 may vary (i.e. from zero upward) depending on the number of analytes to be determined. In this regard, the primary membrane module 20 is typically located on the top of the stack such that the flowing matrix will pass through the membrane 52a of the

primary membrane module before passing through the membranes 50b of the secondary membrane module(s) 18. Because different types of membranes 52a, 52b are used to perform different tests, the primary and secondary membrane modules 20, 18 may be color coded or otherwise marked for easy identification of the type of membrane 52a, 52b present hereon. The membrane 52a, 52b or each membrane module 20, 18 is attached (e.g., by heat fusion, adhesive or other acceptable means) to membrane support structure such as a ring, flange or cross-members 50a, 50b formed within each membrane module 20, 18. A central attachment projection 41 extends downwardly from support cross-members 50a, 50b, and such projection 41 is fused or affixed to the membrane 52a, 52b of that membrane module 18, 20. In this manner, as shown in Figure 9, the center of each membrane 52a, 52b is suspended from the attachment projection 41 and the membrane 52a, 52b is thereby deterred from rupturing or blowing out as the flowable sample is being drawn downwardly through the membrane 52a, 52b. At the same time, however, the membrane will remain substantially unattached to the undersides of the cross-members 50a, 50b and flowable sample is permitted to flow into and occupy a gap 43 which exists between the membrane 52a, 52b and the adjacent cross-members 50a, 50b. This serves to avoid the diminution in effective surface area of the membrane 50a, 50b as would occur if the membranes 52a, 52b were fused or affixed directly to the cross-members 50a, 50b. Such maximization of the effective area of the membrane 52a, 52b will serve to promote rapid flow of filtrate (or sub-filtrate) through each membrane 52a, 52b.

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Please replace the paragraph beginning at page 16, line 13 with the following amended paragraph:

Q1 The lids 22 are mountable in sealing contact on the rim 20 of each primary membrane module 20. A limited air inflow port 24 is formed in each lid 22 to permit a controlled amount of make-up air to pass into each sample-receiving well. These

controlled flow ports 24 may comprise holes with segments of tubing inserted therewithin. The size of the lumen of each such segment of tubing may be selected to provide the desired limitation or constriction on the flow of air which enters each sample-receiving well 21. In the particular embodiment shown, which is designed for simultaneous processing of six (6) samples, the inflow rate through each flow port 24 is preferably no greater than 5/6 the capacity of the vacuum pump used to pull negative pressure within the apparatus 10, as described more fully below. In this manner, the provision of these controlled flow ports 24 will ensure that even when the liquid within five (5) of the six (6) sample-receiving wells 21 has been fully drawn through the membranes 52a, 52b and into the test tubes 15, the amount of make-up air received through those five (5) depleted sample-receiving wells 21 will not be so large as to completely nullify the capability of the vacuum pump to pull adequate negative pressure to draw the remaining liquid through the filter and/or membranes of the remaining sixth sample-receiving well 21.

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Please replace the paragraph beginning at page 17, line 9 with the following amended paragraph:

In operation of the first embodiment of the apparatus 10 shown in Figures 5-9, a suction or vacuum tube is connected to the vacuum port 32 of the base 16, and a test tube rack 14 containing clean test tubes 15 is inserted into the cavity 17 of the base 16. Thereafter, the desired primary and secondary membrane modules 20, 18 are mounted in firm sealing engagement on the sample ports 13, and the cover 12 is mounted in firm sealing contact on the base 16. In some applications clamps, rubber bands, screws, or other connector apparatus (not shown) may be applied to hold the cover 12 in firm sealing contact with the seal member 30 of the base 16. In other applications, the cover 12 may be constructed to snap fit or otherwise mount in sealing contact with the seal member 30 without the use of such connector apparatus.

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[Please replace the paragraph beginning at page 17, line 20 with the following amended paragraph:]

After the cover 12 has been mounted on the base 16, quantities of the flowable sample(s) are dispensed into the sample-receiving cavity 21 of each primary membrane module 20, and the lids 22 are applied. Thereafter, the vacuum source is actuated and negative pressure is formed within the cavity 17 of the base 16. This negative pressure within the apparatus 10 causes the quantities of flowable sample(s) dispensed into the sample-receiving cavities 21 to flow downwardly through the first membrane 52a, through and secondary membrane(s) 52(b), and the resultant filtrate then collects within the test tubes 15.

Please replace the paragraph beginning at page 18, line 27 with the following amended paragraph:

Referring to Figure 10 a second embodiment of the test apparatus 10a generally comprises a) a vacuum base 100, b) a receiving unit 102 having 24 filtrate-receiving wells 109 formed therein, c) plate-type membrane modules 104a, 104b, 104c, each having multiple (e.g. twenty-four(24)) cavities with bottom openings and membranes 108a, 108b, or 108c mounted transversely within such bottom openings, and d) a cover 106 having 24 individual air inlet ports 115 formed therein.

Please replace the paragraph beginning at page 20, line 5 with the following amended paragraph:

In applications where secondary plate-type membrane modules 104b and/or 104c are used, such secondary membrane modules 104b, 104c will typically have

captured secondary analyte(s) (Analytes B, C, etc...) which are to be subsequently released from the membranes 108b, 108c and thereafter concentrated and/or determined. In furtherance of this, a clean receiving unit 102 may be inserted into the cavity 113 of the base 100, and one of the secondary membrane modules 104b or 104c is then positioned on top of the new receiving unit 102 such that each membrane 108b or 108c is positioned over a receiving well 109. A known volume of flush solution or eluant is then placed in the cavity above each membrane 108b or 108c, and the lid 115 is replaced such that it is in sealing contact with the base 100 and the air inlet openings 115 are in alignment with each cavity on the membrane module 104b or 104c. The vacuum source is then reenergized or reconnected to the base to cause a differential pressure to be once again established within the apparatus 10a. In this manner the flush solution or eluant is drawn downwardly through the membranes 108b or 108c so as to extract or release the captured analyte(s) from the membranes 108b or 108c. An eluant/analyte mixture is thus received within each receiving well, and the above described procedure is repeated to qualitatively or quantitatively determine that analyte in the eluant/analyte mixture with each receiving well.

Please replace the paragraph beginning at page 20, line 28 with the following amended paragraph:

Figure 10a shows another view of the above-described second embodiment of the test apparatus 10a(mod) wherein modified plate-type membrane modules 104a', 104b', 104c' have been incorporated. Each of these modified plate-type membrane modules 104a', 104b', 104c' are formed of two (2) materials--a hard polymer HP and an elastomer EM. Specific examples of the preferred hard polymer HP and elastomer EM are referred to above in relation to the first embodiment (Figures 8-9). As shown, an annulus or ring of elastomer EM is formed about the underside of each membrane cavity, so as to abut with the wall of the membrane cavities of the module 104b', 104c'

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positioned therebelow. In this manner, the elastomer EM serves to form a substantially air tight seal between adjacent membrane modules 104a' 104b', 104c'. Also, elastomer EM pads 119 are formed on the underside of the lid 106, around each air inlet port 115, and such pads 119 abut against the upper surface of the membrane module 104a', 104b', 104c' positioned therebelow to form a discreet, substantially air tight seal therebetween. This effectively isolates each sample flowpath, and prevents escape or leakage of air pressure which could interrupt the desired pressure differential used to propel the sample through the membranes 108a', 108b', 108c'.

Please replace the paragraph beginning at page 21, line 22 with the following amended paragraph:

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Figure 11 shows a third embodiment of a test apparatus 10b which comprises a) a vacuum base 150 having a cavity 176 formed therein, b) a receiving unit 152 having a plurality of receiving wells 174 formed therein, c) a support member 154 having a plurality of apertures 172 formed therein, d) plate-type membrane modules 156a, 156b, and 156c, each having a plurality of cavities 171a, 171b, 171c with open bottoms and membranes 170a, 170b, 170c disposed transversely over the open bottom of each cavity 171a, 171b, 171c, e) a sample receiving unit 158 having a plurality of sample receiving wells 178 formed therein, and f) a lid 160 which may be placed in sealing contact on top of the sample receiving unit and which may have a plurality of limited air inlet openings (not shown) of the type described above with respect to the first and second embodiments (see item nos. 24 on Fig. 5a and 115 on Fig.10). These components may be assembled in a stacked array, as shown. Each component is provided with a spring loaded, pivoting, latch member 162 which is configured to engage and latch with a notch 164 in the component positioned immediately therebelow.

Please replace the paragraph beginning at page 22, line 7 with the following amended paragraph:

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In routine operation, the receiving unit 152 is inserted into the cavity 176 of the base 150, and the support member 154 is mounted in the base such that it is in sealing engagement with the o-ring 153 which surrounds the top opening of the base cavity 176 and each aperture 172 is positioned over a receiving well 174. The membrane modules 156a, 156b, 156c are stacked upon the support unit 152 such that each cavity 171a, 171b, 171c and its membrane 170a, 170b, 170c are in alignment over an aperture 172 of the support member 154. The latches 162 of the bottom membrane module 156c are engaged with the notches 164 formed in the support the support member 152, and the latches 162 of the upper membrane modules 156a, 156b are engaged with the notches 164 of the neighboring membrane modules 156b, 156c positioned therebeneath. The sample receiving unit 158 is mounted on the upper-most membrane module 156a such that each sample reservoir 178 is positioned over top of a cavity 171a, and the latches 164 of the sample receiving unit are engaged with the notches 164 on the upper-most membrane module 156a.

Please replace the paragraph beginning at page 22, line 22 with the following amended paragraph:

Quantities of sample are initially deposited in sample-receiving reservoirs 178 and the lid 160 is mounted in sealing contact on top of the sample receiving unit 158 with the latches of the lid 160 in engagement with the notches 164 of the sample receiving unit 158. Thereafter, a source of negative pressure is connected to a port (not shown) formed in the base 150 so as to create negative pressure within the cavity 113 of the base 150. This negative pressure causes each sample to be drawn downwardly through the membranes 170a, 170b and 170c positioned under that

sample reservoir 178, and the resultant filtrate to be received in the particular receiving well 174 positioned under those particular membranes. In this manner, this third embodiment of the test apparatus 10b may be used to simultaneously process a plurality (e.g., 24 or 48 separate samples).

Please replace the paragraph beginning at page 23, line 19 with the following amended paragraph:

In applications such as that shown in Figure 11, where secondary plate-type membrane modules 156b and/or 156c are used, such secondary membrane modules 156b, 156c will typically have captured secondary analyte(s) (Analytes B, C, etc.) which are to be subsequently released from the membranes 170b, 170c and thereafter concentrated and/or determined. In furtherance of this, a clean receiving unit 152 may be inserted into the cavity 176 of the base 150, and one of the secondary membrane modules 156b or 156c is then positioned on top of the new receiving unit 152 such that each membrane 170b or 170c is positioned over a receiving well 174. A known volume of flush solution or eluant is then placed in the cavity 171b or 171c above each membrane 170b or 170c, and the lid 160 is replaced such that it is latched to the notches in the membrane module in use 156b or 156c and in sealing contact with the support member 154. The vacuum source is then re-energized or reconnected to the base 150 to cause a differential pressure to be once again established within the apparatus 10b. In this manner the flush solution or eluant is drawn downwardly through the membranes 170b or 170c so as to extract or release the captured analyte(s) from the membranes 170b or 170c. An eluant/analyte mixture is thus received within each receiving well 174, and the above described procedure is repeated to qualitatively or quantitatively determine that analyte in the eluant/analyte mixture within each receiving well 174.

Please replace the paragraph beginning at page 24, line 20 with the following amended paragraph:

Q14 Each membrane module 198a, 198b has a plurality of individual sample passage channels 210 formed therein. A membrane 216 is disposed transversely within each sample passage channel 210. Membrane support cross-members 214, such as those described hereabove with respect to the first embodiment (see item nos. 50a, 50b and 41 of Figures 7-9) may optionally be formed within the sample passage channels 210 to support and deter tearing or rupture of the membranes 216.

Please replace the paragraph beginning at page 25, line 4 with the following amended paragraph:

Q15 Figures 13 and 13a shows a modified "top loaded" membrane module 198a' which comprises a housing 220 having a plurality of cylindrical bosses formed downwardly therein such that the wall 221 of each cylindrical boss defines a sample passage channel 224. Each channel 224 has a membrane support floor 240 formed transversely therein. A filtrate-flow opening 242 is formed through each membrane support floor 240, and a plurality of raised membrane mounting surfaces 244 are formed on the upper surface of each membrane support floor 240. Disc shaped membranes 228 are placed flat upon the membrane mounting surfaces 224, and o-rings or seals 230 are then passed downwardly into each channel 224 and are disposed in contact with the wall of the channel 224, on top of and in contact with the periphery of each membrane 228. Sealing ring members 232 are then inserted downwardly into each channel 224 and are affixed to the wall of the channel 224 to compress the o-rings or seals 230 and to thereby hold the membranes 228 in captured, fixed position between the o-rings or seals 230 and the underlying membrane support floor 240. The areas between the raised membrane mounting surfaces 244 provide

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spaces through which filtrate which passes downwardly through each membrane 228 may drain through filtrate flow openings 242.

Please replace the paragraph beginning at page 27, line 15 with the following amended paragraph:

Figure 16 shows a self-contained combination base unit 510 a which is useable with several different embodiments of the test apparatus, such as the second 10a and fifth 10d embodiments described above. This combination base unit 510a comprises a housing 511 having a cavity 304' and all of the same elements as the self contained negative pressure base unit 300 shown in Figures 14a and 14b, but additionally including a vacuum station 512 which is designed to provide negative pressure to the test apparatus 500 shown in Figures 15a-15e. In this manner, a vacuum connection nipple 514 is formed in the vacuum station, and is insertable into a corresponding vacuum connection fitting (not shown) on the base 500 of the test apparatus 10d. Shoulders 516 are configured to hold the test apparatus 10d on the vacuum station 516, when in use. An internal check valve or cap is used to close off the vacuum connection nipple 514 when the test apparatus 10d is not mounted thereon.

[Please replace the paragraph beginning at page 27, line 29 with the following amended paragraph:]

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Figure 17 shows a sixth embodiment of the test apparatus of the present invention. This sixth embodiment comprises a dipstick 700 having a handle 702, a first (i.e., outer) membrane 704 and a second (i.e., inner) membrane 706. The second membrane 706 is substantially surrounded and enclosed by the first membrane 704 such that only filtrate which has passed through the first membrane 704 will come into contact with the second membrane 706. The first (i.e., outer) membrane is typically a

micro-porous membrane which serves to prevent particles or large molecules which exceed a certain molecular weight from passing therethrough. Examples of molecular weight cut-off membranes which may be useable as the first membrane 704 include the SARTORIUS™ 1000MW cut off, 3000MW cut off, or 5000MW cut-off, as specified in TABLE III. The second (i.e., inner) membrane is typically an indicator membrane which is impregnated with or which bears an indicator substance, such as a dye, which will undergo some perceptible change (e.g., a color change) when contacted by a certain analyte or a predetermined concentration of a certain analyte. The second membrane 706 may be adapted for a) qualitative determination of a particular analyte (e.g., the second membrane 56 undergoes a single color change occurs in the presence of a certain analyte irrespective of the concentration in which that analyte is present; b) semi-qualitative determination of a certain analyte (e.g., the second membrane undergoes a single color change only if contacted by a certain analyte which is present at or above a predetermined threshold concentration, or c) quantitative determination of the concentration of a particular analyte (e.g., the second membrane 56 undergoes a scaled color change such that the shade or color of the second membrane is indicative of the concentration at which the analyte is present.

Please replace the paragraph beginning at page 29, line 5 with the following amended paragraph:

TABLE I sets forth a number of test kits/assay methods of the present invention, and provides specific information as to the analyte(s), membrane(s), reagent(s) and detection method(s) used in each such test kit/assay method. In TABLE I, each horizontal row sets forth a particular test kit/method of the present invention. The columns of each horizontal row are, from left to right, as follows:

Please replace the paragraph beginning at page 30, line 3 with the following amended paragraph:

TABLE II is a key to the acronyms used to designate the various analytes, membranes, reagents and detection methods in TABLE I.

[Please replace the paragraph beginning at page 30, line 6 with the following amended paragraph:]

A18
TABLE III provides a list of commercially available membranes which correspond to the acronyms used to refer to the membranes in TABLE I. TABLE IV is a table listing algorithms which are useable in conjunction with certain test kit & methods of the present invention to predict or discern certain factors such as shelf life, presence of contaminants, potential for oxidative degradation, etc., as described more particularly herebelow with respect to certain assays which are of predictive value.

Please replace the paragraph beginning at page 31, line 1 with the following amended paragraph:

A19
A test kit/method for determining the amount of free fatty acids in oils and oil components either qualitatively or quantitatively. The oils or oil components may be present in a matrix such as a food, personal care product, cosmetic or other complex matrix. This example is performed in accordance with row 1 of TABLE I.

Please replace the paragraph beginning at page 31, line 29 with the following amended paragraph:

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A test kit/method for determining the amount of free fatty acids in oils and oil components in food, personal care, cosmetics and other matrices which contains the following reagents for analyzing liquids undiluted or diluted in reagents based in solvents, solvent mixtures, or water or water/solvent mixtures. This example is performed in accordance with Row 1 of TABLE I.

Please replace the paragraph beginning at page 32, line 4 with the following amended paragraph:

A. The oil or oil containing extract is dissolved or disbursed in a diluent (e.g., methanol, isopropanol, hexane or combinations thereof) with or without protectants, and may be processed through a membrane if needed, in accordance with row 1 of TABLE I.

[Please replace the paragraph beginning at page 32, line 28 with the following amended paragraph:]

A20

A test kit/method for determining the amount of free fatty acids in oils and oil components in food, personal care, cosmetics and other matrices. The test kit contains the following reagents for analyzing liquids undiluted or diluted, and utilizes a single or stacked membrane preparation of the matrix to remove particles, protein, or other interferants (e.g., metals). This example is performed in accordance with row 1 of TABLE I.

Please replace the paragraph beginning at page 33, line 9 with the following amended paragraph:

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C. The filtrate which passes through the first membrane is then passed through a second membrane such as a metal capturing membrane (e.g., an imino-diacetic acid membrane (IDA) as referred to in TABLE IV), if necessary, to remove additional compounds which would bind the substrate sensitive to acidity or to bind inorganic acids as to contribute background acidity levels.

Please replace the paragraph beginning at page 34, line 22 with the following amended paragraph:

A22
A semi-quantitative, one-vial test kit/method for determining the amount of free fatty acids in oils and oil components in food, personal care, cosmetics and other matrices. The test kit contains the following reagents for analyzing liquids, undiluted or diluted. This example is carried out in accordance with row 1 of TABLE I.

Please replace the paragraph beginning at page 35, line 25 with the following amended paragraph:

A23
A test kit for determining whether a sample of olive oil qualifies as "extra virgin", "virgin" or "virgin corrente" based on the concentration of free fatty acids present therein, or for determining whether aged oils are acceptable for human consumption, or for pre-testing of olives to select those olives which will provide the highest quality oil. The test kit contains the reagents and membranes (if membranes are needed) as specified herebelow. This example is in accordance with row 1 of TABLE I.

Please replace the paragraph beginning at page 37, line 6 with the following amended paragraph:

A test kit for qualitatively determining the amount of free fatty acids in oils and oil components in foods in combination with a polyphenol test which together determines a) oil quality (e.g., extra virgin, virgin, virgin corriente as described in Example #6 above and b) long term stability based on polyphenol content (the higher the polyphenol concentration the longer the stability). This example is in accordance with row 11 of TABLE I.

A24 [Please replace the paragraph beginning at page 37, line 12 with the following amended paragraph:]

A. A sample of the oil or oil containing extracts is dissolved or mixed in a preparation reagent such as isopropanol, with or without protectants. and processed through the membranes shown on row 11 of TABLE I.

Please replace the paragraph beginning at page 38, line 23 with the following amended paragraph:

A25 A test kit for determining the amount of lipid peroxides and free fatty acids in oils and oil components either qualitatively or quantitatively in food, personal care, cosmetics and other matrices which contains the following reagents for analyzing liquids undiluted or diluted. This example may be performed in accordance with either row 2 or row 3 of TABLE I.

[Please replace the paragraph beginning at page 38, line 28 with the following amended paragraph:]

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A. A sample of the oil or oil containing extracts is dissolved or mixed in a preparation reagent such as isopropanol, with or without protectants. This sample may be processed through membranes in accordance with rows 2 or 3 of TABLE I.

Please replace the paragraph beginning at page 40, line 5 with the following amended paragraph:

A test kit for determining the amount of lipid peroxides and free fatty acids in oils and oil components either qualitatively or quantitatively in food, personal care, cosmetics and other matrices which contains the following reagents for analyzing liquids, undiluted or diluted. This example is carried out in accordance with rows 2 and 3 of TABLE I.

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Please replace the paragraph beginning at page 40, line 10 with the following amended paragraph:

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A. A sample of the oil or oil containing extracts is dissolved or mixed in a preparation reagent such as isopropanol, with or without protectants. This sample may be processed through membranes in accordance with rows 2 or 3 of TABLE I.

Please replace the paragraph beginning at page 41, line 14 with the following amended paragraph:

A27

A test kit for qualitative or semi-quantitative determination of lipid peroxides and free fatty acids in oils and/or oil components of food, personal care, cosmetics and other matrices which contains the following reagents for analyzing liquids, undiluted or diluted. The test kit contains the reagents and membranes set forth herebelow and in rows 2 and 3 of TABLE I.

Please replace the paragraph beginning at page 41, line 18 with the following amended paragraph:

A. A sample of the oil or oil containing extracts is dissolved or mixed in a preparation reagent such as isopropanol, with or without protectants. This sample is then processed through membranes in accordance with rows 2 or 3 of TABLE I. Such membrane processing may be performed using a test apparatus of the present invention, as described above.

Please replace the paragraph beginning at page 42, line 24 with the following amended paragraph:

A test kit for utilizing a novel chemical test to qualitatively or quantitatively determine lipid peroxides and free fatty acids in oils or oil components of foods, personal care products, cosmetics and other matrices. The test kit includes the reagents and membranes specified below and in row 3 of TABLE I.

Please replace the paragraph beginning at page 42, line 28 with the following amended paragraph:

A. A sample of the oil or oil containing extracts is dissolved or mixed in a preparation reagent such as isopropanol, with or without protectants. This sample may or may not be processed through a membrane, in accordance with row 3 of TABLE I. If performed, such membrane processing may be carried out using a test apparatus of the present invention, as described above.

Please replace the paragraph beginning at page 43, line 27 with the following amended paragraph:

A₂₉
A test kit for semi-quantitative determination of lipid peroxides and free fatty acids in oils or oil components of a food, personal care product, cosmetic or other matrix, using a color wheel. The test kit includes the reagents and membranes (if necessary) described herebelow and in rows 2 or 3 of TABLE I. This test is particularly useful for analyzing liquids, undiluted or diluted, and may be used to classify samples of olive oil (i.e., extra virgin, virgin, virgin corriente) or to sub-categorize samples of olive oil within a particular class based on expected shelf life.

Please replace the paragraph beginning at page 44, line 5 with the following amended paragraph:

A₃₀
A. A sample of the oil or oil containing extracts is dissolved or mixed in a preparation reagent such as isopropanol, with or without protectants. This sample may or may not be processed through a membrane, in accordance with row 3 of TABLE I. If performed, such membrane processing may be carried out using a test apparatus of the present invention, as described above.

Please replace the paragraph beginning at page 45, line 11 with the following amended paragraph:

A₃₁
A test kit for qualitative or quantitative determination of lipid peroxides and free fatty acids oils or oil components of a food, personal care product, cosmetic or other matrix, using a spectrophotometer. The test kit includes the reagents and membranes (if necessary) described herebelow and in rows 2 or 3 of TABLE I. This test is particularly useful for analyzing liquids, undiluted or diluted, and may be used to classify

samples of olive oil (i.e., extra virgin, virgin, virgin corriente) or to sub-categorize samples of olive oil within a particular class based on expected shelf life.

[Please replace the paragraph beginning at page 45, line 19 with the following amended paragraph:]

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A. A sample of the oil or oil containing extracts is dissolved or mixed in a preparation reagent such as isopropanol, with or without protectants. This sample may or may not be processed through a membrane, in accordance with row 3 of TABLE I. If performed, such membrane processing may be carried out using a test apparatus of the present invention, as described above.

Please replace the paragraph beginning at page 47, line 6 with the following amended paragraph:

A test kit for qualitatively determining the amount of free fatty acids and LPO in oils and oil components in foods, in combination with a potrphenol test which together determines if the olive oil has been adulterated and is aged. This test is performed in accordance with row 30 of TABLE I and the test kit includes the reagents and membranes described below and in row 30 of TABLE I.

A³² [Please replace the paragraph beginning at page 47, line 12 with the following amended paragraph:]

A. A sample of the oil or oil containing extracts is dissolved or mixed in a preparation reagent such as isopropanol, with or without protectants, and processed through the membranes shown on row 30 of TABLE I.